II. REMARKS

Claims 18, 20 to 24 and 48 to 70 are pending.

A. Regarding the Amendments

Claim 18 has been amended to clarify that the array of antibodies "comprises" uncharacterized antibodies, thus allowing for characterized antibodies also to be present on the array. The amendment is supported by claims 18 and 19 as originally filed and, for example, at page 18, paragraph 71, which describes microarrays of uncharacterized antibodies, and page 19, paragraph 74, which discloses that in a further aspect, the microarrays can be composed of previously characterized antibodies. As such, the amendment does not add new matter.

B. Regarding the Information Disclosure Statement

Applicants acknowledge that references cited in the patent application, but not on a Form 1449 or Form 892, have not been considered.

C. Prior Art Rejections

The rejection of claims 18, 48, and 49 35 U.S.C. §§103(a) as allegedly obvious over Baecher-Allan et al. in view of Ekins et al. is respectfully traversed.

It is stated in the Office Action that Baecher-Allan et al. describe methods to screen uncharacterized and unknown antibodies. Ekins et al. is provided as describing a method to detect proteins via multianalyte microspot immunoassays using an array of antibodies. As such, it is alleged that it would have been obvious to use the high throughput method of Ekins et al. in the antibody screening methods of Baecher-Allan et al. because Ekins et al. taught that the microspot method allowed for highly sensitive immunoassays and the simultaneous measurement of thousands of different substances.

Applicants point out, however, as stated by the Examiner, that Baecher-Allan et al. describe methods to screen uncharacterized and unknown antibodies. More specifically, Baecher-Allan et al. describe a method to "characterize" previously uncharacterized antibodies

(see, e.g., Abstract; and page 184, left column, last full paragraph). Baecher-Allan et al. do not teach or suggest the use of uncharacterized antibodies to "compare protein expression in two or more cells", as required by the claims. Instead, Baecher-Allan et al. utilize cell lines that are known to express Ly-48 to demonstrate that four antibodies, including one antibody known to bind Ly-48 ("characterized antibody") and three uncharacterized antibodies, each bind Ly-48 (see page 186, left column). The reference does not teach or suggest that the uncharacterized antibodies can be used to compare protein expression in two or more populations of cells.

Ekins et al. also do not describe the use of antibodies to compare protein expression in two or more cell population. It is stated in the Office Action the Ekins et al. describe that dual microspot assay devices are compared (citing to page 1961, Figure 8). Applicants point out, however, that the comparison is of a competitive assay and a non-competitive assay; there is no indication in the reference that suggests comparing protein expression in two or more cell populations. As such, Ekins et al. do not teach or suggest the use of an array comprising uncharacterized antibodies to compare protein expression in two or more cell populations and, therefore, fail to provide the teaching that is missing in Baecher-Allan et al. As such, it is submitted that the cited references, either alone or in combination, would not have rendered the claimed methods obvious and, therefore, it is respectfully requested that this rejection be removed.

The rejection of claims 21, 23, and 24 under 35 U.S.C. §103(a) as allegedly obvious over Baecher-Allan et al. in view of Ekins et al., and further in view of Yates et al. is respectfully traversed.

Baecher-Allan et al. and Ekins et al. are provided as described above. Yates et al. is provided as describing evaluating binding patterns, including using antibody-protein binding to measure cellular proteins, wherein the protein pattern or fragment is compared with database information. It is alleged that it would have been obvious to use the protein patterning process of Yates et al. with the method of Baecher-Allan et al. in view of the high throughput protein patterning procedure of Ekins et al. because Yates et al. teach that the binding patterns can

identify diseases and disorders, as well as identify the sequence or sub-sequences of the proteins involved in the disorder.

As discussed above, Baecher-Allan et al. do not teach or suggest comparing protein expression in two or more populations of cells but, instead, describe the characterization of antibodies based on the binding of Ly-48, which was known to be expressed in the cells examined. Applicants submit that the skilled artisan would not have been motivated to combine Baecher-Allan et al. with Yates et al. because Baecher-Allan et al. describe the characterization of antibodies, whereas Yates et al. describe a method of characterizing protein expression. Further, where Yates et al. discuss antibodies, it is with respect to producing an antibody to a specific region of protein (see, e.g., paragraph bridging columns 17-18). Thus, the antibodies described by Yates et al. are "characterized" antibodies in that they are produced with respect to a specific region of a protein. As such, one of ordinary skill would not have been motivated to combine Yates et al. with Baecher-Allen et al. because Baecher-Allen et al. describe a method of characterizing antibodies, whereas the Yates et al. describe a method that requires the use of characterized antibodies. Accordingly, it is submitted that, absent Yates et al., the claimed invention would not have been obvious in view of Baecher-Allen et al. and Ekins et al. for the reasons as set forth above and, therefore, it is respectfully requested that this rejection of the claims be removed for this reason.

Applicants further submit, however, that even if, for argument sake, it is considered that the skilled artisan would have combined the Yates et al. reference with the Baecher-Allen et al. and Ekins et al. references, the claimed subject matter would not have been obvious to the skilled artisan because Yates et al. also do not teach or suggest using an array comprising "uncharacterized" antibodies to compare protein expression in two or more cell populations. As such, Yates et al. do not provide the teaching which is missing in the Baecher et al. and Ekins et al. references. Accordingly, it is submitted that the claimed invention would not have been obvious in view Baecher-Allen et al., Ekins et al., and Yates et al., either alone or in combination, and, therefore, it is respectfully requested that this rejection of the claims be removed.

The rejection of claims 22, 50, 60 to 63, 69, and 70 under 35 U.S.C. §103(a) as allegedly obvious over Baecher-Allen et al. in view of Ekins et al., and further in view of Yates et al. and Cupo is respectfully traversed.

The Baecher-Allen et al., Ekins et al., and Yates et al. references are provided as set forth above. Cupo is combined as teaching a two-dimensional polyacrylamide gel electrophoresis procedure to measure matrix proteins. As discussed above, one of ordinary skill in the art would not have been motivated to combine Yates et al. with Baecher-Allen et al. and Ekins et al. However, even if the Baecher-Allen et al., Ekins et al., and Yates et al. references were combined, they would not render the claimed subject matter obvious because the references fail to teach or suggest using an array comprising uncharacterized antibodies to compare protein expression in two or more cell population. Cupo also does not teach or suggest using an array comprising uncharacterized antibodies to compare protein expression in two or more cell populations and, therefore, does not provide that which is missing in Baecher et al., Ekins et al., and Yates et al. As such, it is submitted that the Baecher et al., Ekins et al., Yates et al., and Cupo references, either alone or in combination, do not teach or suggest the claimed methods and, therefore, would not have rendered the claimed invention obvious. Accordingly, it is respectfully submitted that this rejection of the claims be removed.

The rejection of claim 68 under 35 U.S.C. § 103(a) as allegedly obvious over Baecher et al. in view of Ekins et al., and further in view of Yates et al. and Cupo is respectfully traversed.

The cited references are relied on as set forth above. It is stated in the Office Action that, while the modification with respect to examining an arterial endothelial cell lysate as compared to a venous endothelial cell lysate is not taught in the cited references, the modification is "a mere design choice and optimization". As discussed above, however, one of ordinary skill in the art would not have been motivated to combine Yates et al. with Baecher-Allen et al. and Ekins et al. However, even if the artisan would have combined Baecher-Allen et al., Ekins et al., and Yates et al., the references, alone or in combination, do not teach or suggest the use of an array comprising uncharacterized antibodies to compare protein expression in two or more cell

populations. As such, the issue of whether the stated modification is "a mere design choice and optimization" is not relevant because the teaching missing in Baecher-Allen et al., Ekins et al., Yates et al., and/or Cupo remains absent. Accordingly, it is respectfully requested that this rejection of the claims be removed.

The rejection of claims 55 and 64 to 67 under 35 U.S.C. § 103(a) as being unpatentable over Baecher-Allen et al. in view of Ekins et al., and further in view of Kauvar is respectfully traversed.

Baecher-Allen et al. and Ekins et al. are provided for the reasons set forth above. Kauvar is provided as teaching methods of characterizing drugs (proteins) via antibody arrays comprising different binding affinities. Applicants submit, however, similar to the reasons set forth above with respect to Yates et al., one of ordinary skill in the art would not have been motivated to combine Kauvar with Baecher-Allen et al. More specifically, Baecher-Allan et al. describe a method of characterizing antibodies based on the binding of Ly-48, which was known to be expressed in the cells examined. In contrast, Kauvar describes the use of antibodies to characterize drugs and, like Yates et al., Kauvar describes the use of "characterized" antibodies, i.e., antibodies having specific known affinities (see., e.g., column 3, lines 24-37). As such, it is submitted that one of ordinary skill would not have been motivated to combine Kauvar with Baecher-Allen et al. because Baecher-Allen et al. describe a method of characterizing antibodies, whereas Kauvar describes a method that requires the use of characterized antibodies. Accordingly, it is submitted that, absent Kauvar, the claimed invention would not have been obvious in view of Baecher-Allen et al. and Ekins et al. for the reasons as set forth above and, therefore, is respectfully requested that this rejection of the claims be removed for this reason.

Further, even if for argument sake it is considered that the artisan would have combined Kauvar with Baecher-Allen et al., Kauvar does not teach or suggest using an array comprising uncharacterized antibodies to compare protein expression of two more cell populations and, therefore, does not provide the teaching missing in Baecher-Allen et al. and Ekins et al. Accordingly, it is submitted that, even if the artisan would have combined Kauvar with Baecher-

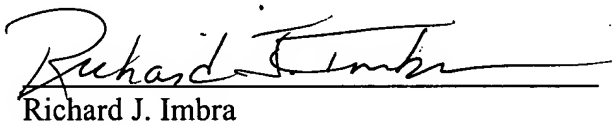
Allen et al. and Ekins et al., the claimed invention would not have been obvious and, therefore, it is respectfully requested that this rejection of the claims be removed.

In view of the amendments and the above remarks, it is submitted that the claims are in condition for allowance, and a notice to that effect respectfully is requested. The Examiner is invited to contact Applicants' undersigned representative if there are any questions relating to this application.

If any fee is deemed necessary in connection with the filing of the present Amendment, the Commissioner is authorized to charge Deposit Account No. 50-1355.

Respectfully submitted,

Date: October 4, 2004



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